JC535 U.S. PTO
02/24/00

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JC675 U.S. PTO
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BOX PATENT APPLICATION
Assistant Commissioner for Patents
Washington, D.C. 20231

Re: Koichi HORIKAWA
METHOD FOR TRANSFERRING MPOA PACKET
Our Ref. Q57985

Dear Sir:

Attached hereto is the application identified above including 17 sheets of the specification, claims, 6 sheets of drawings, executed Assignment and PTO 1595 form, and executed Declaration and Power of Attorney. Also enclosed is the Information Disclosure Statement with form PTO-1449 and references.

The Government filing fee is calculated as follows:

Total claims	5 - 20	=		x	$18.00	= $.00
Independent claims	1 - 3	=		x	$78.00	= $.00
Base Fee						$690.00
TOTAL FILING FEE						**$690.00**
Recordation of Assignment						$40.00
TOTAL FEE						**$730.00**

Checks for the statutory filing fee of $690.00 and Assignment recordation fee of $40.00 are attached. You are also directed and authorized to charge or credit any difference or overpayment to Deposit Account No. 19-4880. The Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16 and 1.17 and any petitions for extension of time under 37 C.F.R. § 1.136 which may be required during the entire pendency of the application to Deposit Account No. 19-4880. A duplicate copy of this transmittal letter is attached.

Priority is claimed from February 26, 1999 based on Japanese Application No. 11-051991. The priority document is enclosed herewith.

Respectfully submitted,
SUGHRUE, MION, ZINN,
MACPEAK & SEAS, PLLC
Attorneys for Applicant

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METHOD FOR TRANSFERRING MPOA PACKET

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to a method for transferring a Multi-Protocol Over Asynchronous Transfer Mode (hereinafter called MPOA) address request packet received by a conventional MPOA server to the other MPOA server or to the other MPOA client.

Background Art

The conventional Multi-Protocol Over Asynchronous Transfer Mode (hereinafter, called MPOA) is a communication mode used on a ATM network using existing protocols such as an Internet Protocol (IP), an Internetwork Packet Exchange (IPX), as specified by the version 1.0 (AF-MPOA-0087.00, ATM Forum).

However, in such a conventional packet transfer method, since a source layer 3 address of a data packet which is desired to be short cut is not included in the MPOA address resolution request packet, a problem has been encountered that, when the MPOA server receives the MPOA address resolution request packet, the MPOA server can not determine based on the layer 3 packet filter information whether or not the MPOA address resolution

request packet is to be forwarded to the other MPOA server or the other MPOA client. Moreover, since the above-described source layer 3 address is not included, the MPOA server can not check whether or not it is the desired MPOA address resolution request. Thus, even when an address resolution request is transmitted from an MPOA client, triggered by a data communication from an undesired source, another problem encountered is that when such an MPOA address resolution request is processed by a normal procedure, there is a possibility that an undesirable short cut path will be established.

For example, as shown in Fig. 7, it is assumed that the data communication is started from a terminal 700 to another terminal 701. If no layer 3 packet filter information is set in an MPOA server 500 or in another MPOA server 501, the data packet from the terminal 700 arrives at the terminal 701 through a router 800, an MPOA client 600, MPOA servers 500 and 501, and an MPOA client 601. When a data flow to the terminal 701 is detected at the MPOA client 600, the MPOA client 600 sends an MPOA address resolution request packet to the MPOA server 500. This MPOA address resolution request packet is forwarded through the MPOA servers 500 and 501 to the MPOA client 601, and the reply for the request packet is forwarded through the MPOA clients 601 and the MPOA servers 501 and 500, to the MPOA client 600, so that the MPOA client 600 learn the ATM address of the MPOA client 601. When a short cut path is established from the MPOA client 600 to the MPOA client 601, the data packet sent from the

terminal 700 to the terminal 701 is forwarded through the terminal 700, the router 800, and the MPOA clients 600 and 601 to the terminal 701.

In contrast, if a rule such as "the data packet from a subnet X is not permitted to reach a subnet C" is configured, the data packet from the terminal 700 addressed to the terminal 701 will be discarded by the layer 3 function portion of the MPOA server 500 or 501 based on the layer 3 packet filter information, while if the MPOA client is not provided with a short cut path, the data packet from the terminal 700 is forwarded through the router 800 and the MPOA client 600 to the MPOA servers 500 and 501.

However, in that period, since a data flow to the terminal 701 is detected in the MPOA client 600, the MPOA client 600 sends an MPOA address resolution request packet to the MPOA server 500. This address resolution request packet is forwarded through the MPOA servers 500 and 501 to the MPOA client 601, and the reply for the request is forwarded through the MPOA client 601 and the MPOA servers 500 and 501 to the MPOA client 600, so that the MPOA client 600 can learn the ATM address of the MPOA client 601. Thereby, the MPOA client 600 establishes a short cut path to the MPOA client 601, and thereafter the data packet sent from the terminal 700 to the terminal 701 is forwarded through the terminal 700, the router 800, the MPOA clients 600 and 601, to the terminal 701. Consequently, a serious security problem arises that a data packet, which should be originally discarded, arrives at the terminal 701 through the short cut path developed by the above process.

SUMMARY OF THE INVENTION

It is therefore an objective of the present invention to provide a method capable of determining whether or not the address can be resolved based on the layer 3 packet filter information and capable of prohibiting establishment of an undesirable short cut path.

According to the first aspect, a method for transferring MPOA packets in an ATM network comprises a step for an MPOA server which has received an address resolution request packet from an MPOA client for determining whether or not said address resolution request packet is to be forwarded to the other MPOA server or the other MPOA client based on layer 3 packet filter information.

According to the second aspect, in the method for transferring MPOA packets according to the first aspect, the method comprises the step for said MPOA client of transmitting a source layer 3 address of the data packet that is to be a short cut by adding to an extension of the MPOA address resolution request packet, while the MPOA server determines whether or not said MPOA address resolution request packet is to be forwarded to the other MPOA server or the other MPOA client based on said source layer 3 address placed in the extension and the destination layer 3 address in the MPOA address resolution request packet received from said MPOA client, after being verified by the layer 3 packet filter information.

According to the third aspect, in the method for transferring MPOA

packets according to the first apspect, the method comprising the step for said MPOA client of:

notification by the MPOA packet processor of the MPOA address resolution request operation and source layer 3 address information to the source layer 3 address extension processor;

judging by the source layer 3 address extension processor which has received the notification about whether or not the outer instruction directs that the source layer 3 address be included in the MPOA packet extension, and when the answer is yes, to make the MPOA packet extension include the source layer 3 address; and

transmitting by the client MPOA packet transmitting portion the MPOA address resolution request packet with the MPOA packet extension added at said client MPOA packet processor to an MPOA server.

According to the fourth aspect, in the method for transferring MPOA packets according to the first aspect, the method comprising the step for said MPOA server of:

receiving by the MPOA packet receiving portion the MPOA address resolution request packet from said MPOA client;

checking by the server MPOA packet processor about whether or not the source layer 3 address is included in the received MPOA address resolution request packet, and

when included, obtaining by the server MPOA packet processor the source layer 3 address and the destination layer 3 address;

retrieving by the layer 3 filter retrieving portion the layer 3 filter information using said source layer 3 address and the destination layer 3 address as the key, and judging by said server MPOA packet processor about whether or not to permit passing the filter; and directing the execution of error processing, when not permitted or directing the execution of processing for forwarding the received MPOA address resolution packet to the other MPOA server or the other MPOA client.

According to the fifth aspect, in the method for transferring MPOA packets according to the fourth aspect, the error processing is a process for transmitting the MPOA packet which indicates that the address resolution has been failed toward the MPOA client.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a block diagram showing a structure of the MPOA client that carries out a method of the present invention for transferring an MPOA packet.

Fig. 2 is a block diagram showing a structure of an MPOA server that carries out a method of the present invention for transferring an MPOA packet.

Fig. 3 is a flow chart showing operations of the MPOA client shown in Fig.1.

Fig. 4 is a flow chart showing operations of the MPOA server shown in Fig.2.

Fig. 5 is a format diagram showing an extension of the MPOA packet of the present invention for holding the source layer 3 address.

Fig. 6 is a format diagram showing the other extension of the MPOA packet of the present invention for holding the source layer 3 address.

Fig. 7 is a block diagram showing the conventional MPOA packet transfer system.

DETAILED DESCRIPTION OF THE INVENTION

[First Embodiment]

Hereinafter, the first embodiment of the present invention will be described with reference to attached drawings.

Fig. 1 is a diagram showing a structure of an MPOA client for carrying out a method of the present invention for transferring an MPOA packet. The MPOA client comprises a client MPOA packet processor 11, a source layer 3 address extension processor 12, and a client MPOA packet transmitting portion 13, which are connected as shown in the Fig. 1. The client MPOA packet processor 11 functions so as to receive from the outside an instruction to start MPOA address resolution processing. The source layer 3 address extension 12 functions so as to be able to receive from the outside an instruction indicating whether or not the source layer 3 address is included in the extension of the MPOA packet.

Fig. 2 is a block diagram showing a structure of the MPOA server 20, which comprises an MPOA packet receiving portion 21, a server MPOA

packet processor 22, a layer 3 filter retrieving portion 23, and a server MPOA packet transmitting portion 24, which are connected as shown in Fig. 2. The layer 3 filter retrieving portion 23 functions so as to receive from the outside the layer 3 filter information. Layer 3 filter information denotes information for determining whether or not a data packet is permitted to pass through, based on key factors of a source layer 3 address (or a subnet number) and a destination layer 3 address (or a subnet number). For example, information is such as "A data packet, in which the source layer 3 address belongs to the subnet X and the destination layer 3 address belongs to the subnet Y, is not permitted to pass through". This layer 3 filter information is suitably configured by an administrator of the MPOA server. It should be noted that Figs 1 and 2 only depict the portion for realizing the function of this invention, and other functional portions constituting the MPOA server or the MPOA client are not depicted.

Next, an operation is described in detail with reference to Figs. 3 and 4. Fig. 3 shows a flow chart showing a procedure for processing data in the MPOA client. First, the client MPOA packet processor 11 starts the operation (Step 100) by an instruction from the outside (for example, an instruction from a functional portion which detects that the data packet is continuously transmitted), and notifies the source layer 3 address extension processor 12 to start an MPOA address resolution request operation. At this time, the source layer 3 address extension processor 12 (step 101) is informed of transmission layer 3 address information. The source layer 3 address

extension processor 12 judges whether or not the outside instruction directs to include the source layer 3 address be included in the extension of the MPOA packet (step 102). It is also possible for a user to execute an instruction using any applicable commands.

When the result of the above judgement is that "the instruction directs that the source layer 3 address be included", the extension of the MPOA packet including the source layer 3 address is prepared (step 103), and the matter is notified to the client MPOA packet processor 11. The client MPOA packet processor 11 adds the extension of the MPOA packet prepared by the source layer 3 address extension processor 12 to the MPOA address resolution request packet (step 104). In contrast, when the result of the above judgement is that "the instruction directs that the source layer 3 address not be included", nothing is done. The client MPOA packet processor 11 delivers the MPOA address resolution request packet to the client MPOA packet transmitting portion 13, the client MPOA packet transmitting portion 13 transmits the MPOA address resolution request packet to the MPOA server (step 105), and the routine ends (step 106).

Next, Fig. 4 shows a flow chart of a data processing procedure in the MPOA server. First, the procedure starts by receiving the MPOA address resolution request packet from the MPOA packet receiving portion 21 (step 200), and the MPOA packet receiving portion 21 delivers the MPOA address resolution request packet to the server MPOA packet processor 22 (step 201). The server MPOA packet processor 22 checks whether or not the source layer

3 address is included in the received MPOA address resolution request packet (step 202). When the check indicates that the source layer 3 address is included, the source layer 3 address and the destination layer 3 address which is an object of the address resolution are derived from the MPOA address resolution request packet for delivery to the layer 3 filter retrieving portion 23.

The layer 3 filter retrieving portion 23 retrieves the layer 3 filter information using those two received layer 3 addresses, determines whether or not passage through the filter is permissible (step 203), and the server MPOA packet processor 22 is informed of the result. The server MPOA packet processor 22 judges whether the information from the layer 3 filter retrieving portion 23 is "permissible" or "not permissible" (step 204). If "not permissible", error processing is executed and the routine ends (step 206). If the result is "permissible", processing is executed for forwarding the received MPOA address resolution request packet to the other MPOA server or the other MPOA client for delivery to the server MPOA packet transmitting portion.

If the judgement result in the above-described step 202 is that the source layer 3 address is not included, the received MPOA address resolution request packet is processed for forwarding to the other MPOA server or to the other MPOA client, and delivered to the server MPOA packet transmitting portion 24. The server MPOA packet transmitting portion 24 transmits the MPOA address resolution request packet received from the server MPOA

packet processor 22 toward the other MPOA server or the other MPOA client (step 207) and the routine ends (step 208). The error processing described above is processing, for example, that transmits a MOPA packet indicating the failure of the address resolution to the MPOA client.

Fig. 5 shows examples of formats for the extension of the MPOA packet for holding the source layer 3 address. In this example, "Vendor Private Extension" of the MPOA control packet is used. The C field and u field are set 0. The Type field is set to 8 which indicates that this is the Vendor Private Extension. The Length field is set to a length from the Vendor ID field to the Data Source Protocol Address field in octet unit. The Vendor ID field is set to, for example, 119 (decimal number) which represents the NEC Corporation. The Sub ID field is set to a suitable number of a vendor for distinguishing a project or a model of the same vendor. The Sub Type field is set to a suitable function number of the present Vendor-Private Extension. In this case, a number is set to which represents the source layer 3 address extension. The DSPA Len field is set to a length of the source layer 3 address which is stored in the next Data Source Protocol Address field. The Data Source Protocol Address field is set to a source layer 3 address.

Even when an MPOA client provided with the functions of the present invention transmits an MPOA address resolution request packet with the addition of the source layer 3 address to an MPOA server which is not provided with the function of the present invention, the MPOA server can execute processing without any hindrance. This is because the source layer

3 address is held in the extension of the MPOA packet. In addition, the MPOA server having the function of this invention can execute processing without any hindrance even when it receives the MPOA address resolution request packet which is not provided with the function of the present invention.

[Second Embodiment]

Hereinafter, the second embodiment of the present invention is described. This embodiment is provided for the MPOA client in adding the source layer 3 address by defining a new "source layer 3 address extension" as the regular extension of MPOA instead of using "Vendor Private Extension". An example of the format of the extension is shown in Fig. 6.

As shown in Fig. 6, the C field and the u field are set to 0. The Type field is set to a value (for example, 100f (hexadecimal number)) representing that this is the extension of the source layer 3 address. The Length field is set to a length from the DSPA Len field to the Data Source Protocol Address field in octets. The DSPA Len field is set to a length of the source layer 3 address to be stored in the Data Source Protocol Address field. The unused field is set to 0. The Data Source Protocol Address field is set to a source layer 3 address. It is noted that the values shown above and the field names of the packets is not limited to the above examples and any numbers and names may be selected, and the present invention may be realized by software, firmware, or hardware.

As described above, the present invention shows the significant effect

that, the source layer 3 address can be learned at each MPOA server since an MPOA client transmits an MPOA address resolution request packet with the source layer 3 address in the extension; thereby it is possible to determine whether or not the address resolution is permissible based on the layer 3 packet filter information at each MPOA server, using the source layer 3 address and the address of the data packet transferred practically through the short cut path. Furthermore, since the MPOA server permits the address resolution only when it is permitted by the layer 3 packet filter information, the security of the packet transfer is improved.

Docket No. 2000-0005

What is claimed is:

1. A method for transferring MPOA packets in an ATM network, comprising the step for determining by an MPOA server which has received an address resolution request packet from an MPOA client about whether or not said address resolution request packet is to be forwarded to the other MPOA server or the other MPOA client based on layer 3 packet filter information.

2. A method for transferring MPOA packets according to claim 1, wherein the method comprising the step of transmitting by said MPOA client a source layer 3 address of the data packet that is to be a short cut by adding an extension of the MPOA address resolution request packet, while the MPOA server determines whether or not said MPOA address resolution request packet is to be forwarded to the other MPOA server or the other MPOA client based on said source layer 3 address placed in the extension and the destination layer 3 address in the MPOA address resolution request packet received from said MPOA client, after being verification of the layer 3 packet filter information.

3. A method for transferring MPOA packets according to claim 1, wherein the method comprising the step for said MPOA client of:

notification by the client MPOA packet processor of the MPOA address

resolution request operation and source layer 3 address information to the aource layer 3 address processor;

judging by the source layer 3 address extension processor which has received the notification about whether or not the outer instruction directs to include the source layer 3 address in the MPOA packet extension, and when the answer is yes, to make the MPOA packet extension include the source layer 3 address; and

transmitting by the client MPOA packet transmitting portion the MPOA address resolution request packet with the MPOA packet extension added at said client MPOA packet processor to an MPOA server.

4. A method for transferring MPOA packets according to claim 1, wherein the method comprising the step for said MPOA server of:

receiving by the MPOA packet receiving portion the MPOA address resolution request packet from said MPOA client;

checking by the server MPOA packet processor about whether or not the source layer 3 address is included in the received MPOA address resolution request packet, and

when included, obtaining by the server MPOA packet processor of the source layer 3 address and the destination layer 3 address;

retrieving by the layer 3 filter retrieving portion of the layer 3 filter information using said source layer 3 address and the destination layer 3 address as the key, and judging by said server MPOA packet processor about

whether or not to permit passage of the filter; and directing the execution of error processing; when not permitted or directing the execution of processing for forwarding the received MPOA address resolution packet to the other MPOA server or the other MPOA client.

5. A method for transferring MPOA packets according to claim 4, wherein the error processing is a process for transmitting the MPOA packet which indicates that the address resolution has been failed toward the MPOA client.

ABSTRACT

A method for transferring an MPOA packet which is capable of permitting address resolution based on layer 3 packet filter information and capable of preventing establishing an undesirable short cut path.

In an ATM network, an MPOA server 20 which received an address resolution request packet from an MPOA client 10 determines whether or not the address resolution request packet be forwarded to the other MPOA server or the other MPOA client based on a layer 3 packet filter information.

Docket No. 50T5656-Docket

Fig. 1

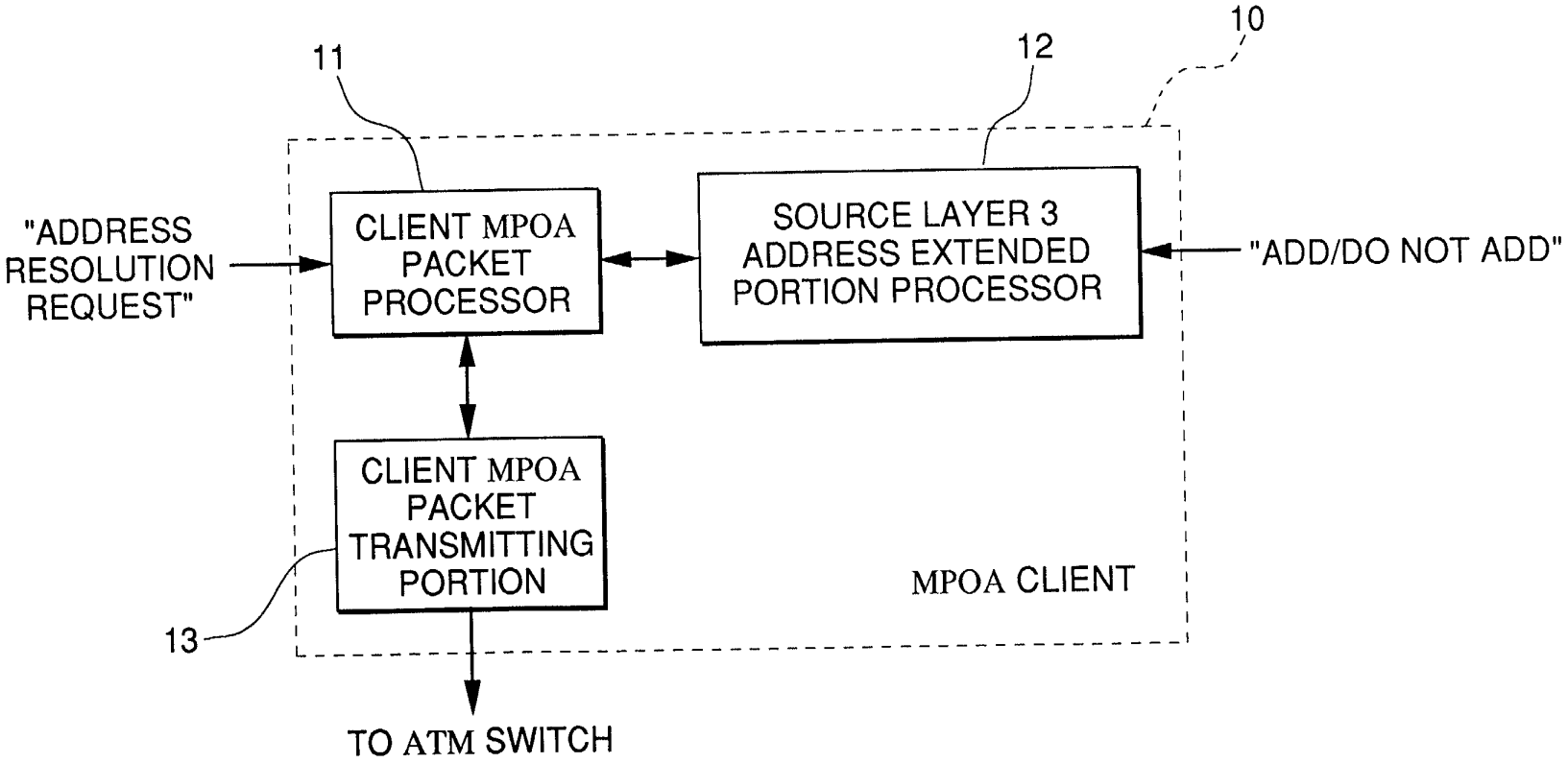

10
11
12
"ADDRESS RESOLUTION REQUEST"
CLIENT MPOA PACKET PROCESSOR
SOURCE LAYER 3 ADDRESS EXTENDED PORTION PROCESSOR
"ADD/DO NOT ADD"
CLIENT MPOA PACKET TRANSMITTING PORTION
13
MPOA CLIENT
TO ATM SWITCH

Fig. 2

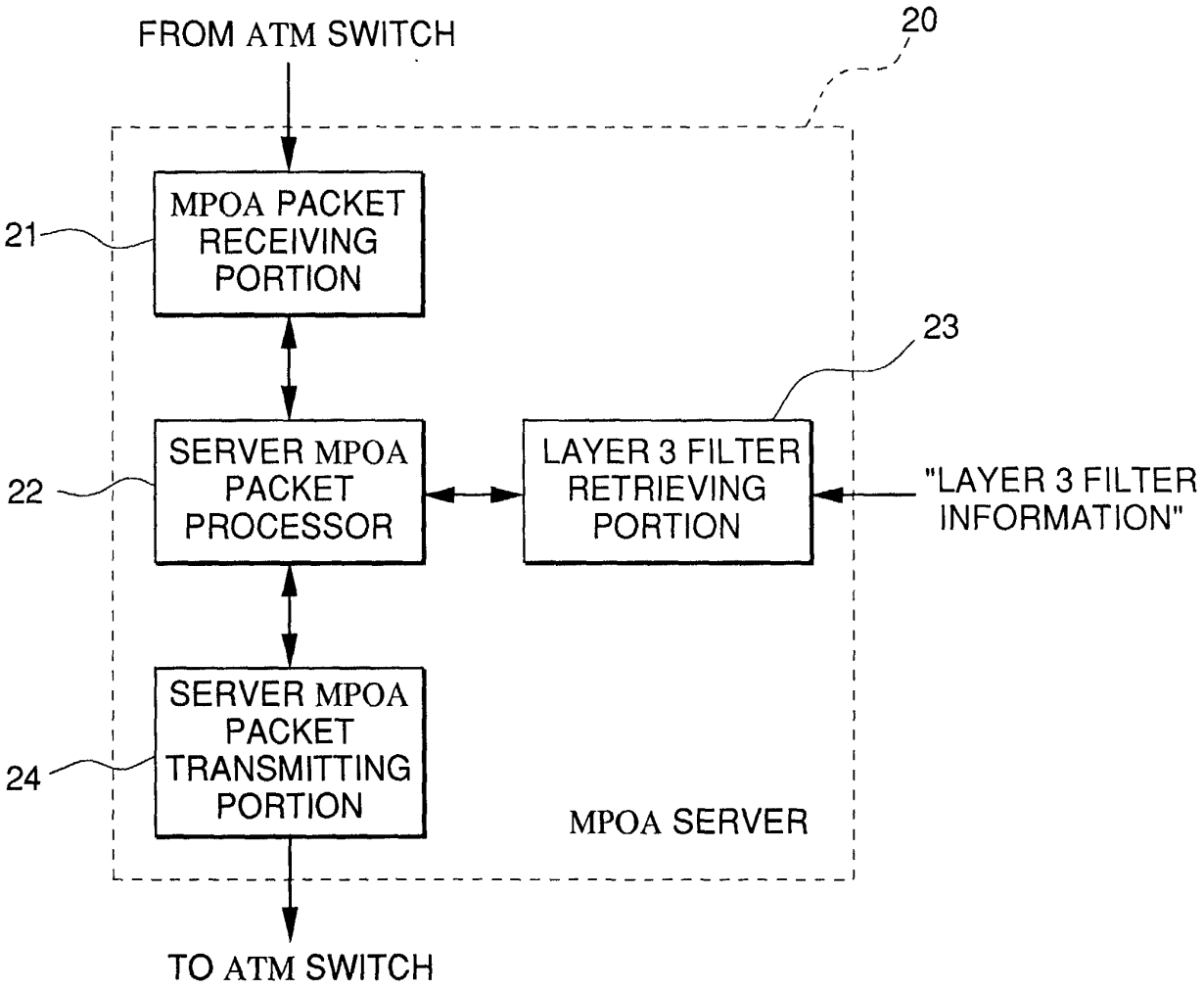

FROM ATM SWITCH
20
MPOA PACKET RECEIVING PORTION
21
SERVER MPOA PACKET PROCESSOR
22
LAYER 3 FILTER RETRIEVING PORTION
23
"LAYER 3 FILTER INFORMATION"
SERVER MPOA PACKET TRANSMITTING PORTION
24
MPOA SERVER
TO ATM SWITCH

Fig. 3

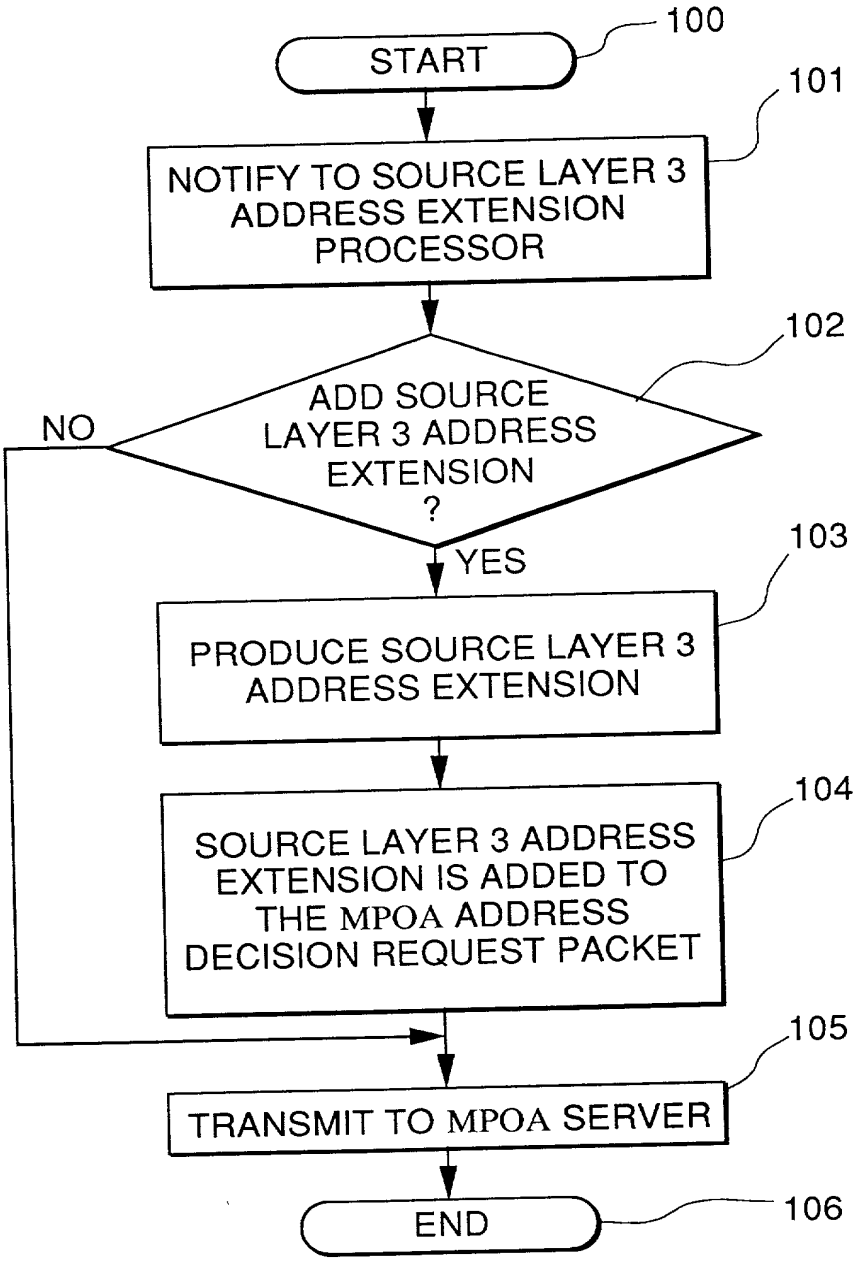

START
100
NOTIFY TO SOURCE LAYER 3 ADDRESS EXTENSION PROCESSOR
101
ADD SOURCE LAYER 3 ADDRESS EXTENSION ?
102
NO
YES
PRODUCE SOURCE LAYER 3 ADDRESS EXTENSION
103
SOURCE LAYER 3 ADDRESS EXTENSION IS ADDED TO THE MPOA ADDRESS DECISION REQUEST PACKET
104
TRANSMIT TO MPOA SERVER
105
END
106

Fig. 4

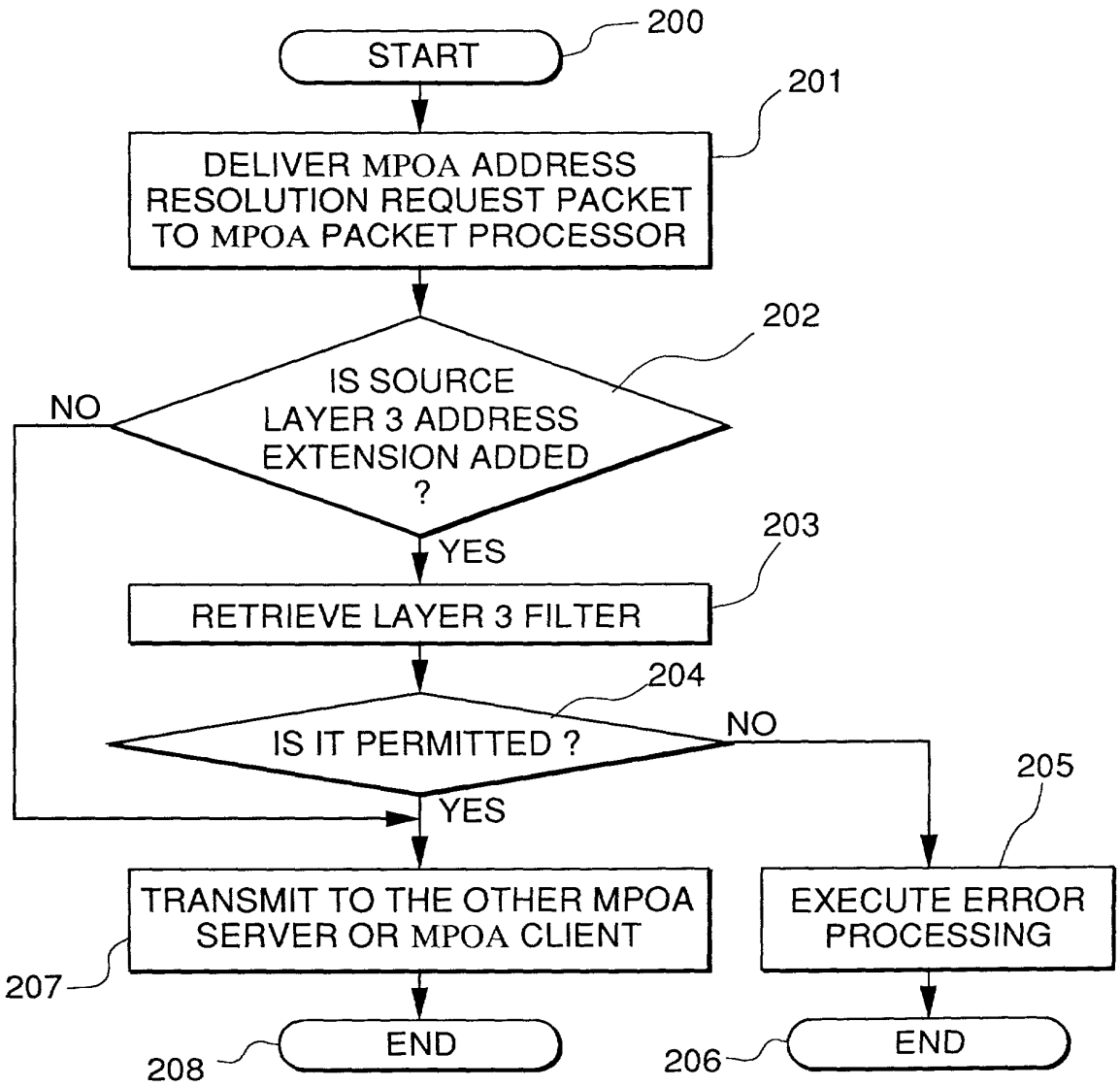

START
200
DELIVER MPOA ADDRESS RESOLUTION REQUEST PACKET TO MPOA PACKET PROCESSOR
201
IS SOURCE LAYER 3 ADDRESS EXTENSION ADDED ?
202
NO
YES
RETRIEVE LAYER 3 FILTER
203
IS IT PERMITTED ?
204
NO
YES
TRANSMIT TO THE OTHER MPOA SERVER OR MPOA CLIENT
207
EXECUTE ERROR PROCESSING
205
END
208
END
206

Fig. 5

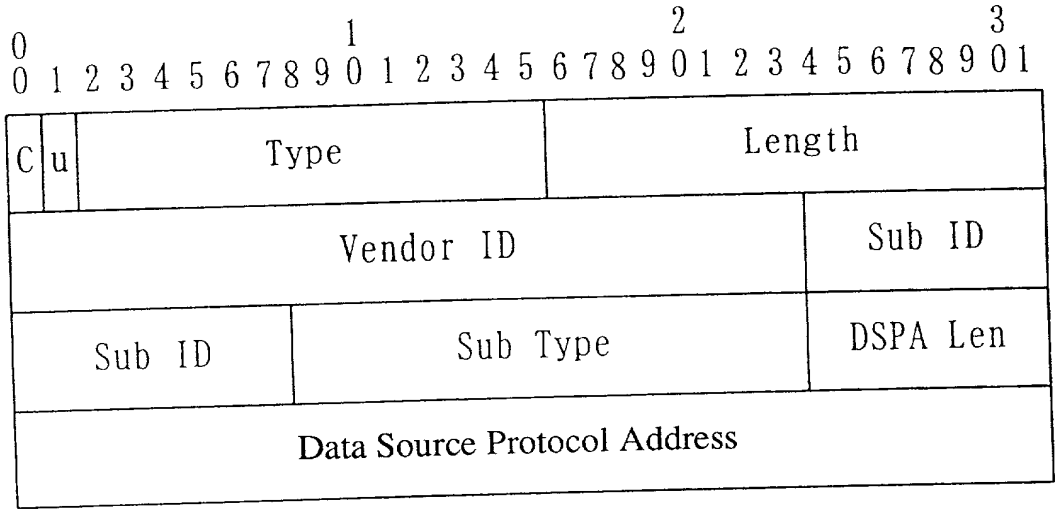

0 1 2 3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
C
u
Type
Length
Vendor ID
Sub ID
Sub ID
Sub Type
DSPA Len
Data Source Protocol Address

Fig. 6

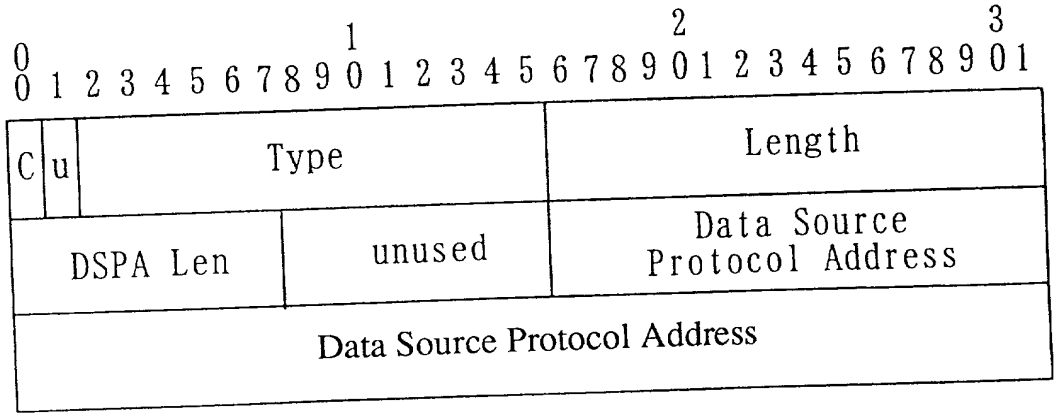
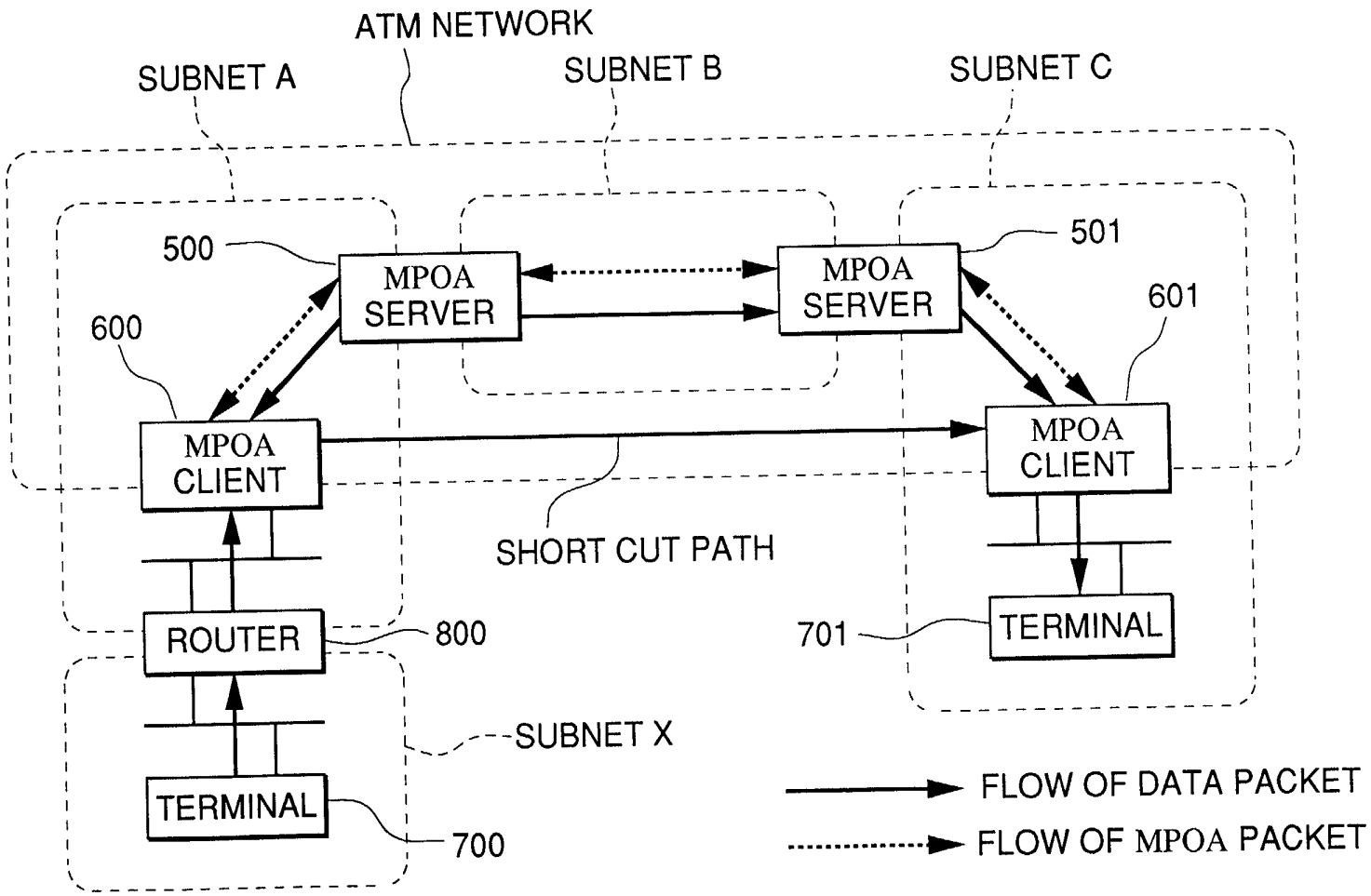

0 1 2 3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
C
u
Type
Length
DSPA Len
unused
Data Source Protocol Address
Data Source Protocol Address

Fig. 7


ATM NETWORK
SUBNET A
SUBNET B
SUBNET C
500
501
MPOA SERVER
MPOA SERVER
600
601
MPOA CLIENT
MPOA CLIENT
SHORT CUT PATH
ROUTER
800
701
TERMINAL
SUBNET X
TERMINAL
700
FLOW OF DATA PACKET
FLOW OF MPOA PACKET

99-051991 OSP-8652

SOLE/JOINT

P/F

DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name that I verily believe I am the original, first and sole inventor (if only one name is listed below) or a joint inventor (if plural names are listed below) of the subject matter claimed and for which a patent is sought in the application entitled:

METHOD FOR TRANSFERRING MPOA PACKET

which application is:

X the attached application (for original application)

___ application Serial No. _____, filed _____, and amended on _____ (for declaration not accompanying application)

that I have reviewed and understand the contents of the specification of the above-identified application, including the claims, as amended by any amendment referred to above; that I acknowledge my duty to disclose information of which I am aware which is material to the patentability of this application under 37 C.F.R. 1.56, that I hereby claim foreign priority benefits under Title 35, United States Code §119, §172 or §365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified on said list any foreign application for patent or inventor's certificate on this invention having a filing date before that of the application on which priority is claimed:

Application Number	Country	Filing Date	Priority Claimed (yes or no)
Patent 11-051991	Japan	February 26, 1999	X

I hereby claim the benefit of Title 35, United States Code §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in a listed prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge my duty to disclose any information material to the patentability of this application under 37 C.F.R. 1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Application Serial No.	Filing Date	Status (patented, pending, abandoned)

I hereby appoint John H. Mion, Reg. No. 18,879; Donald E. Zinn, Reg. No. 19,046; Thomas J. Macpeak, Reg. No. 19,292; Robert J. Sea[illegible], Jr., Reg. No. 21,092; Darryl Mexic, Reg. No. 23,063; Robert V. Sloan, Reg. No. 22,775; Peter D. Olexy, Reg. No. 24,51[illegible]; J. Frank Osha, Reg. No. 24,625; Waddell A. Biggart, Reg. No. 24,861; Robert G. McMorrow, Reg. No. 19,093; Louis Gubin[illegible]ky, Reg. No. 24,835; Neil B. Siegel, Reg. No. 25,200; David J. Cushing, Reg. No. 28,703; John R. Inge, Reg. No. 26,916; Joseph J. Ruch, Jr., Reg. No. 26,577; Sheldon I. Landsman, Reg. No. 25,430; Richard C. Turner, Reg. No. 29,710; Howard L. Bernst[illegible]in, Reg. No. 25,665; Alan J. Kasper, Reg. No. 25,426; Kenneth J. Burchfiel, Reg. No. 31,333; Gordon Kit, Reg. No. 30,76[illegible]; Susan J. Mack, Reg. No. 30,951; Frank L. Bernstein, Reg. No. 31,484; Mark Boland, Reg. No. 32,197; William H. Mand[illegible], Reg. No. 32,156; Scott M. Daniels, Reg. No. 32,562; Brian W. Hannon, Reg. No. 32,778 and Abraham J. Rosner, Reg. No. 3[illegible],276, my attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith, and request that all correspondence about the application be addressed to SUGHRUE, MION, ZINN, MACPEAK & SEAS, 2100 Pennsylvania Avenue, N.W., Washington, D.C. 20037-3202.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date February 15, 2000

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